What is claimed is:

1. A method for determining which setting of a plurality of device input compensation settings provides a minimum of unwanted signal at an output of the device, comprising:

a) applying a signal to an input of the device;

b) setting the device to a first one of the plurality of device input compensation settings;

c) measuring unwanted signal level at the first compensation setting;

d) determining a first distance from the first compensation setting to a calibration setting resulting in minimum unwanted signal level based on the first measured level and a predetermined characteristic of the unwanted signal;

e) setting the device to a second one of the plurality compensation settings;

f) measuring unwanted signal level at the second compensation setting;

g) determining a second distance from the second compensation setting to the calibration setting based on the second measured level and the predetermined characteristic; and

h) determining the calibration setting based on the first and second settings and the first and second distances.

2. The method according to claim 1, comprising:

comparing the first measured level with a predetermined threshold value, and if the first measured level is less than or equal to the predetermined threshold value, then preventing the performance of steps d) though h) and selecting the calibration setting to be the first setting.

3. The method according to claim 2, comprising:

comparing the second measured level with the predetermined threshold value, and if the second measured level is less than or equal to the predetermined threshold value, then preventing the performance of steps g) and h) and selecting the calibration setting to be the second setting.

4. The method according to claim 1, wherein the predetermined characteristic is a gradient corresponding to a change in unwanted signal level per change in calibration setting.

5. The method according to claim 4, wherein the predetermined characteristic of the unwanted signal is determined by applying a signal to an input of the device and measuring a change in unwanted signal between adjacent compensation settings.

6. The method according to claim 4, wherein the characteristic is determined by the device design.

7. The method according to claim 1, comprising saving the determined calibration setting.

8. The method according to claim 1, comprising verifying that the selected calibration setting is an acceptable calibration setting.

9. The method according to claim 8, wherein verifying further comprises:

measuring a level of unwanted signal at the selected calibration setting; and

comparing the measured value at the selected setting with a predetermined threshold level.

10. The method according to claim 9, further comprising saving the measured unwanted signal level and the selected calibration setting.

11. The method according to claim 1, further comprising:

i) setting the device to a third compensation setting not previously measured;

j) measuring unwanted signal level at the third compensation setting;

k) determining a third distance from the third compensation setting to the calibration setting based on the third measured level and the predetermined characteristic; and

l) determining the calibration setting in h) based on the first through third settings and the first through third distances.

12. The method according to claim 11, comprising:

comparing the third measured level with a predetermined threshold value, and if the third measured level is less than or equal to the predetermined threshold value, then selecting the third setting as the calibration setting and then preventing the performance of steps k) and l).

13. The method according to claim 11, comprising verifying whether the determined calibration setting in l) is an acceptable calibration setting.

14. The method according to claim 11, wherein the first and second compensation settings are selected to have a common compensation amount in one dimension of compensation and the third compensation setting is selected to have a compensation amount in the one dimension different from the common compensation amount.

15. The method according to claim 1, wherein if the distance determined in d) is greater than a maximum allowable distance from the first setting, then rejecting the device and preventing performance of steps e) through h).

16. The method according to claim 1, wherein if the distance determined in g) is greater than a maximum allowable distance from the second setting, then rejecting the device and preventing the performance of step h).

17. The method according to claim 1, wherein the device input compensation settings are adjustable to vary compensation in two dimensions.

18. The method according to claim 17, wherein each setting corresponds to at least one type of compensation selected from DC offset, phase difference, and amplitude imbalance.

19. The method according to claim 17, wherein the device is an in-phase (I) and quadrature-phase (Q) modulator, and the two dimensions of each setting correspond to compensation for a signal on an I channel and a Q channel, respectively, of the modulator.

20. The method according to claim 17, wherein the device is an in-phase (I) and quadrature-phase (Q) modulator and each dimension of compensation compensates for imbalances between an I channel signal and a Q channel signal of the modulator.

21. The method according to claim 20, wherein one dimension corresponds to a phase imbalance between the I channel signal and the Q channel signal.

22. The method according to claim 20, wherein one dimension corresponds to an amplitude imbalance between the I channel signal and the Q channel signal.

23. The method according to claim 19, wherein a first dimension corresponds to compensating DC applied to the I channel and a second dimension corresponds to compensating DC applied to the Q channel.

24. The method according to claim 17, wherein the compensation settings comprise a grid of compensation settings.

25. The method according to claim 24, wherein the first compensation setting is selected from a setting at a corner of the grid.

26. The method according to claim 25, wherein the second compensation setting is selected from a setting at a corner of the grid having an amount of compensation in one dimension in common with the first compensation setting.

27. The method according to claim 24, wherein a center setting of the grid is selected as the first compensation setting.

28. The method according to claim 1, wherein determining the calibration setting further comprises:

i) calculating a sum of distance errors for each compensation setting not measured, each said sum being based on difference between a determined distance and a distance between a measured setting and a non measured setting; and

j) selecting a setting having the lowest sum of distance errors.

29. The method according to claim 28, further comprising:

k) measuring unwanted signal level at the selected setting having the lowest distance error; and

l) comparing the unwanted signal level measured in k) with a predetermined threshold value to verify that the selected setting is an acceptable calibration setting.

30. The method according to claim 29, wherein if it is verified that the selected setting is not acceptable and a different setting has an associated lowest distance error equal to the distance error of the unacceptable calibration setting, the different setting is selected.

31. The method according to claim 30, further comprising repeating k) and l) for the different setting.

32. The method according to claim 29, wherein if it is verified that the selected setting is not acceptable, the method further comprises:

m) setting the device to a setting not previously measured and having a next lowest distance error;

n) repeating i) through l) for the setting having the next lowest distance error; and

o) repeating m) through n) until an acceptable calibration setting is verified or for a predetermined number of repetitions, whichever occurs first.

33. The method according to claim 1, wherein the unwanted signal comprises local oscillator leakage.

34. The method according to claim 1, wherein the unwanted signal comprises unwanted sideband for a single sideband signal.

35. A method for determining a setting for calibrating an electronic device including a plurality of compensation settings, each corresponding an amount of input compensation from a range of stepped amounts, to provide minimal level of unwanted signal at the device output, comprising:

measuring unwanted signal level at a first setting;

calculating a first distance in setting steps from the first setting to a calibration setting resulting in minimal unwanted signal level at the device output based on the first measured level and a characteristic of the unwanted signal;

measuring unwanted signal level at a second setting at a distance nearest to the calculated distance from the first setting; and

selecting the second setting as the calibration setting if the measured unwanted signal level is less than or equal to a predetermined value.

36. The method according to claim 35, wherein selection of the first setting comprises selecting a setting corresponding to largest or smallest compensation amount in the range of stepped amounts.

37. The method according to claim 35, comprising:

rejecting the device after the first measurement if the calculated distance is greater than a maximum allowable distance value, said maximum allowable distance having a value based on the maximum number of steps in the range of steps from the first setting.

38. The method according to claim 35, comprising:

comparing the second measured level with the first measured level and rejecting the device if the second level is greater than the first measured level.

39. The method according to claim 35, wherein the device input receives two separate signals, and each of the plurality of settings provides amounts of compensation for the two input signals.

40 The method according to claim 35, wherein each setting corresponds to at least one type of compensation selected from DC offset, phase difference, and amplitude imbalance.

41. The method according to claim 35, wherein measuring the second setting comprises:

generating a set of candidate calibration settings by calculating for each setting point the distance error to the first measured setting; and

selecting as the second setting the setting in the candidate set having the lowest distance error.

42. The method according to claim 41, wherein if it is determined that the measured unwanted signal at the second setting exceeds the predetermined value, the method further comprises:

a) measuring unwanted signal level at a setting in the candidate set having an associated next lowest distance error;

b) comparing the measured level at the setting having the next lowest associated distance error with the predetermined value; and

c) selecting the calibration setting as the measured setting in a) if the unwanted signal level is less than or equal to the predetermined value; and

d) if measured unwanted signal at the selected setting is greater than the predetermined value, repeating a) through c) until an acceptable calibration setting is verified or for a predetermined number of repetitions, whichever occurs first.

43. The method according to claim 35, wherein the characteristic of the unwanted signal corresponds to a change in unwanted signal per change in calibration setting.

44. The method according to claim 43, wherein the characteristic of the unwanted signal is determined by applying a signal to an input of the device and measuring a change in unwanted signal between adjacent compensation settings.

45. The method according to claim 35, wherein the characteristic of the unwanted signal is determined by the device design.

46. The method according to claim 35, wherein the characteristic of the unwanted signal is a predetermined value determined by measuring the change in unwanted signal with a change in compensation setting step.

47. The method according to claim 35, wherein the device is a single input modulator.

48. The method according to claim 35, comprising:

comparing the measured unwanted signal level at the first setting with a predetermined threshold value, and if the first measured unwanted signal level is less than or equal to the predetermined threshold value, then preventing the performance of calculating the first distance, measuring unwanted signal level at the second setting, and selecting the second setting, and selecting the calibration setting to be the first setting.

49. A method for determining whether a device is within a calibration range within one measurement, comprising:

(a) applying a signal to an input of a device;

(b) setting the device to one of a plurality of different calibration settings;

(c) measuring unwanted signal level at the device output;

(d) calculating a distance from the calibration setting to a setting resulting in minimum unwanted signal level at the output based on the measured unwanted signal level and a characteristic of the unwanted signal; and

(e) determining whether calibration of the device is beyond a range of possible calibration settings based on the calculated distance.

50. The method according to claim 49, comprising rejecting the device if it is determined that the device is outside a calibration range.

51. The method according to claim 49, wherein the predetermined characteristic of the unwanted signal corresponds to a change in unwanted signal per change in calibration setting.

52. The method according to claim 51, wherein the predetermined characteristic of the unwanted signal is determined by applying a signal to an input of the device and measuring a change in unwanted signal between adjacent compensation settings.

53. The method according to claim 51, wherein the characteristic is determined by the device design.

54. The method according to claim 49, wherein if it is determined that the device is outside the calibration range, the method further comprises:

(f) adjusting the calibration setting to another setting; and

(g) repeating steps (d) to (f) a predetermined number of times unless an adjusted setting is determined to be within the calibration range in step (e).

55. Apparatus for determining which setting of a plurality of device input compensation settings provides a calibration setting of minimum of unwanted signal at an output of the device, comprising:

a signal generator for generating a test signal supplied to an input of the device;

means for setting the device to one of a plurality of device input compensation settings;

means for measuring a level of unwanted signal output from the device; and

a processor for determining, for each measured compensation setting, a corresponding distance from the measured compensation setting to a calibration setting resulting in minimum unwanted signal level, said determination being based on the measured level of the unwanted signal and a predetermined characteristic of the unwanted signal, and for determining the calibration setting based on the measured settings and the determined distances.

56. The apparatus of claim 55, further comprising a memory for storing the determined calibration setting and the measured unwanted signal

57. The apparatus of claim 55, further comprising a comparator for comparing each measured level of unwanted signal with a predetermined threshold value.

58. The apparatus of claim 55, wherein each compensation setting corresponds to at least one type of compensation selected from DC offset, phase difference, and amplitude imbalance.

59. The apparatus of claim 55, wherein the processor is further configured for

calculating a sum of distance errors for each compensation setting not measured, each said distance error being based on difference between a determined distance and a distance between a measured setting and a non-measured setting.

60. A computer-readable medium containing a program which executes the steps of:

a) applying a signal to an input of the device;

b) setting the device to a first one of a plurality of device input compensation settings;

c) measuring unwanted signal level at the first compensation setting;

d) determining a first distance from the first compensation setting to a calibration setting resulting in minimum unwanted signal level based on the first measured level and a predetermined characteristic of the unwanted signal;

e) setting the device to a second one of the plurality compensation settings;

f) measuring unwanted signal level at the second compensation setting;

g) determining a second distance from the second compensation setting to the calibration setting based on the second measured level and the predetermined characteristic; and

h) determining the calibration setting based on the first and second settings and the first and second distances.

61. The computer program of claim 60 further comprising the executable steps of:

comparing the first measured level with a predetermined threshold value, and if the first measured level is less than or equal to the predetermined threshold value, then preventing the performance of steps d) though h) and selecting the calibration setting to be the first setting.

62. The computer program of claim 60 further comprising the executable steps of:

comparing the second measured level with the predetermined threshold value, and if the second measured level is less than or equal to the predetermined threshold value, then preventing the performance of steps g) and h) and selecting the calibration setting to be the second setting.

63. The computer program of claim 60 further comprising the executable step of verifying that the selected calibration setting is an acceptable calibration setting.

64. The computer program of claim 63 further comprising the executable steps of:

measuring a level of unwanted signal at the selected calibration setting; and

comparing the measured value at the selected setting with a predetermined threshold level.

65. The computer program of claim 64 further comprising the executable step of saving the measured unwanted signal level and the selected calibration setting.

66. The computer program of claim 60 further comprising the executable steps of:

i) setting the device to a third compensation setting not previously measured;

j) measuring unwanted signal level at the third compensation setting;

k) determining a third distance from the third compensation setting to the calibration setting based on the third measured level and the predetermined characteristic; and

l) determining the calibration setting in h) based on the first through third settings and the first through third distances.

67. The computer program of claim 66 further comprising the executable steps of:

comparing the third measured level with a predetermined threshold value, and if the third measured level is less than or equal to the predetermined threshold value, then selecting the third setting as the calibration setting and then preventing the performance of steps k) and l).

68. The computer program of claim 66 further comprising the executable step of verifying whether the determined calibration setting in step l) is an acceptable calibration setting.

69. The computer program of claim 60, wherein if the distance determined in step d) is greater than a maximum allowable distance from the first setting, then rejecting the device and preventing performance of steps e) through h).

70. The computer program of claim 60, wherein if the distance determined in step g) is greater than a maximum allowable distance from the second setting, then rejecting the device and preventing the performance of step h).

71. The computer program of claim 60, wherein determining the calibration setting further comprises the executable steps of:

i) calculating a distance error for each compensation setting not measured based on the measured settings and the determined distances; and

j) selecting a setting having the lowest distance error.

72. The computer program of claim 71, further comprising the executable steps of:

k) measuring unwanted signal level at the selected setting having the lowest distance error; and

l) comparing the unwanted signal level measured in k) with a predetermined threshold value to verify that the selected setting is an acceptable calibration setting.

73. The computer program of claim 72, wherein if it is verified that the selected setting is not acceptable and a different setting has an associated lowest distance error equal to the distance error of the unacceptable calibration setting, the different setting is selected.

74. The computer program of claim 73, further comprising repeating k) and l) for the different setting.

75. The computer program of claim 72, wherein if it is verified that the selected setting is not acceptable, the program further comprises the executable steps of:

m) setting the device to a setting not previously measured and having a next lowest distance error;

n) repeating i) through l) for the setting having the next lowest distance error; and

o) repeating m through n until an acceptable calibration setting is verified, or for a predetermined number of repetitions, whichever occurs first.